

METHOD OF FABRICATING AN INTEGRATED CIRCUIT WITH A DIELECTRIC LAYER EXPOSED TO A HYDROGEN-BEARING NITROGEN SOURCE

Abstract of the Disclosure

The present invention provides a flash memory integrated circuit and a method of fabricating the same. A tunnel dielectric in an erasable programmable read only memory (EPROM) device is nitrided with a hydrogen-bearing compound, particularly ammonia. Hydrogen is thus incorporated into the tunnel dielectric, along with nitrogen. The gate stack is etched and completed, including protective sidewall spacers and dielectric cap, and the stack lined with a barrier to hydroxyl and hydrogen species. Though the liner advantageously reduces impurity diffusion through to the tunnel dielectric and substrate interface, it also reduces hydrogen diffusion in any subsequent hydrogen anneal. Hydrogen is provided to the tunnel dielectric, however, in the prior exposure to ammonia.

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